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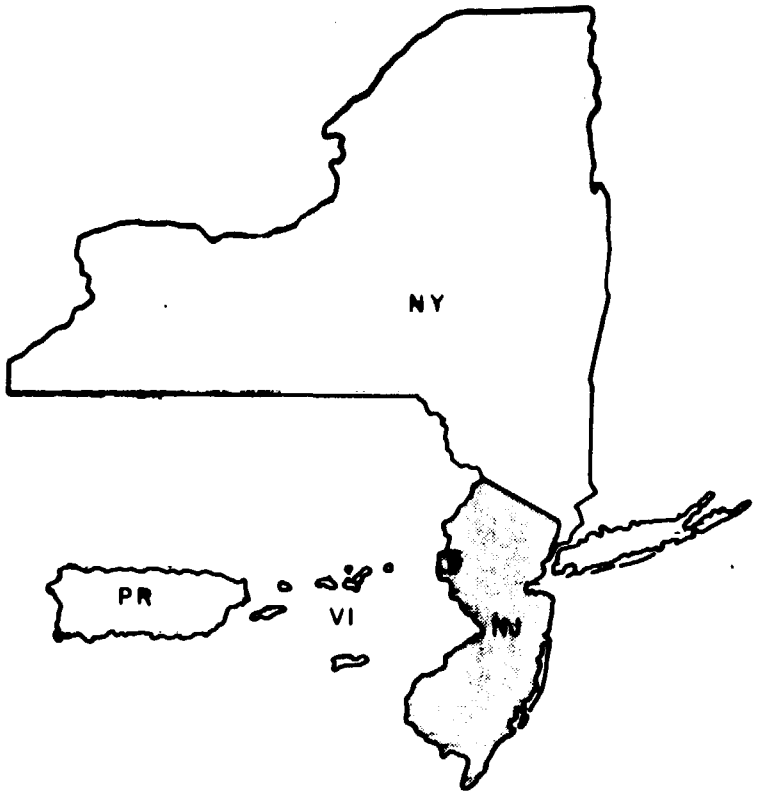
Research and Development

Site Analysis
Millington Asbestos Dumps
Morris County, New Jersey

EPA Region 2
and OERR



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Site Analysis
Millington Asbestos Dumps
Morris County, New Jersey

by
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Contract No. 68-03-3161

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ENVIRONMENTAL MONITORING SYSTEMS LABORATORY
OFFICE OF RESEARCH AND DEVELOPMENT
U.S. ENVIRONMENTAL PROTECTION AGENCY
LAS VEGAS, NEVADA 89114

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ABSTRACT

This report contains an analysis of historical aerial photography of seven known or suspected asbestos dumps in Morris County, New Jersey. These are known collectively as the Millington Asbestos Dumps. The largest of these, located in Millington, New Jersey, and referred to in this report as the Millington Site fill area, is known locally as Asbestos Hill. Signs of filling and waste disposal are present at this site from 1940 to 1983. The Environmental Protection Agency (EPA) Region 2 requested this report to assess concerns for the environmental quality of the area and any possible threat to local residents. Collateral information from the Region reports recent allegations of phenyl mercuric acetate disposal onsite. Features of interest at the industrial facility east of the fill area are also noted.

Six other known or suspected asbestos dumps are analyzed in this report: the Pine Valley Tree Service Site and four other sites referred to as the White Bridge Road Sites, located north of Meyersville, New Jersey; and the Great Swamp Site, south of Pleasantville, New Jersey. Signs of filling and earthmoving are visible on the historical photographs of all of these sites at various times in the past. Other features of interest are also noted in the report.

General drainage patterns in the areas surrounding the sites are noted on the 1940 photographs. Generally, only significant changes are noted on later photographs.

The EPA's Environmental Photographic Interpretation Center in Warrenton, Virginia, a field station of the Environmental Monitoring Systems Laboratory in Las Vegas, Nevada, performed this study at the request of EPA Region 2. This analysis covers the period between 1940 and 1983, and work was completed in October 1984.

CONTENTS

FIGURES

INTRODUCTION

This report contains an analysis of seven known or suspected asbestos dumps in Morris County, New Jersey, referred to collectively as the Millington Asbestos Dumps. The largest of these is the Millington Site fill area (referred to locally as Asbestos Hill), located immediately north of Haas Road, on the east bank of the Passaic River, in Millington (see Figures 1 and 3-10). The Millington Site consists of the fill area, facility buildings and probable waste disposal areas between the facility and fill area.

Other sites discussed in this report include: the East, Central, West and North White Bridge Road Sites (shown on Figures 2 and 11-18), which are located east of the intersection of White Bridge and New Vernon Roads, 1.4 kilometers (0.9 mile) north of Meyersville, New Jersey; the Pine Valley Tree Service Site (shown on Figures 2 and 11-18), which is located on the east side of New Vernon Road, approximately 0.5 kilometer (0.3 mile) north of Meyersville, New Jersey; and the Great Swamp Site (shown on Figures 2 and 19-26), which is located on the east side of Long Hill Road, approximately 0.5 kilometer (0.3 mile) south of Pleasantville, New Jersey.

Figures 1 and 2 depict the site locations, keyed to U.S. Geological Survey (USGS) 1:24,000 scale topographic quadrangle maps. Site boundaries or areas used in this analysis were determined by observations made from the aerial photography and do not denote legal property lines or ownership.

Aerial photography of the Millington Asbestos Dumps was obtained to represent the period from 1940 to 1983.[1] Historical black and white photography for the years 1940, 1951, 1959, 1963, 1970, 1974 and 1979, along with color infrared photography for 1983, was used for this analysis.

General drainage patterns surrounding the sites are shown on the 1940 photographs. Generally, only significant changes are shown on later photographs. Some less significant features on the sites are annotated only the first year they are visible and are mentioned again only if they disappear.

The Environmental Protection Agency's (EPA) Environmental Photographic Interpretation Center in Warrenton, Virginia, a field station of the Environmental Monitoring Systems Laboratory in Las Vegas, Nevada, performed this study at the request of EPA Region 2. This analysis was completed in September 1984.

[1] A complete listing of the photography and maps used in this report can be found in the References section.

FIGURE 1
MILLINGTON ASBESTOS DUMPS

LOCATION MAP
BERNARDSVILLE, N. J. QUAD

SCALE 1:24,000

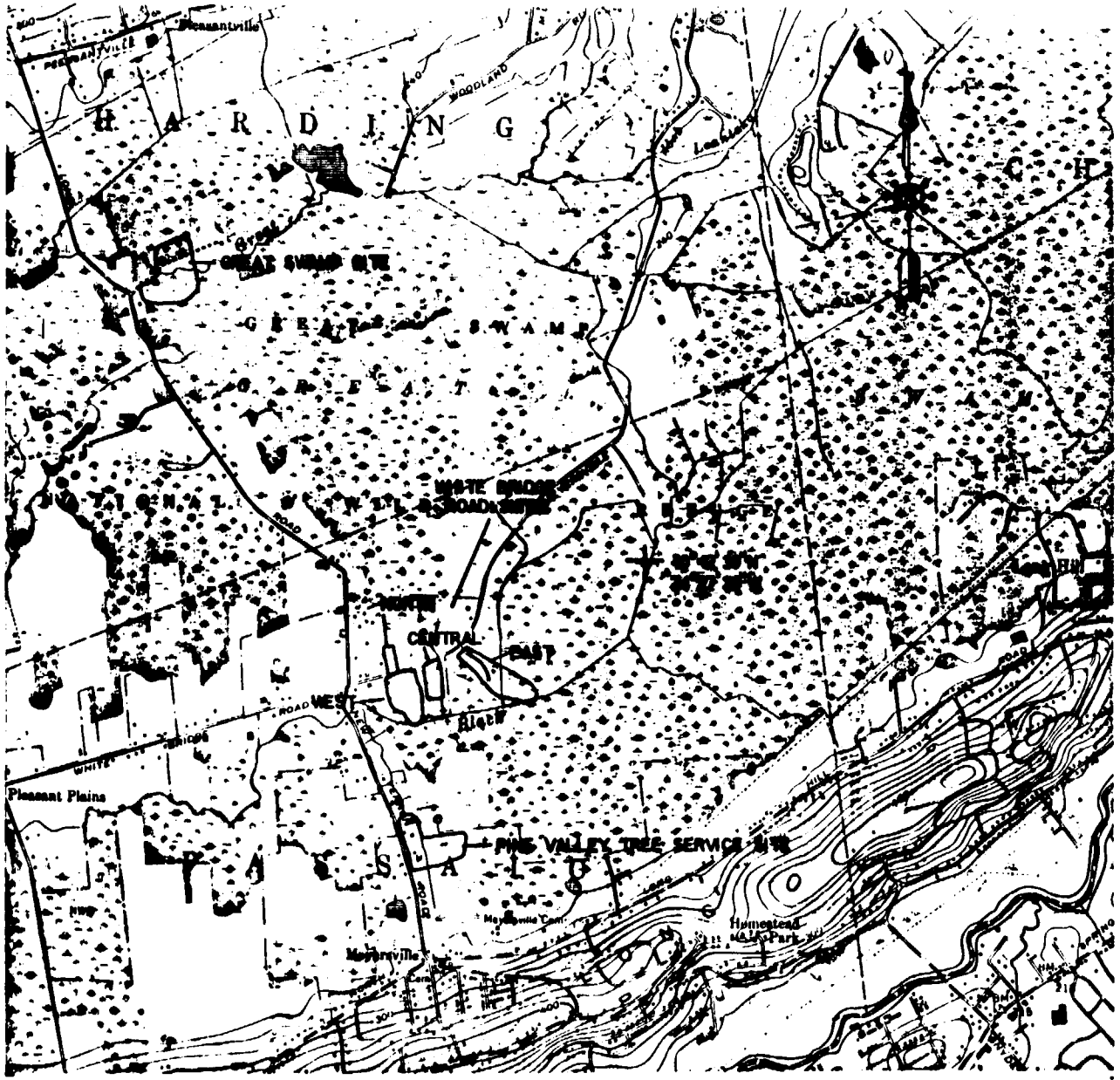


FIGURE 2
MILLINGTON ASBESTOS DUMPS

LOCATION MAP
CHATHAM, N. J. QUAD

SCALE 1: 24,000

ASB 002 0566

SUMMARY

MILLINGTON SITE

1940 - (Fig. 3) Three levels of fill visible at light-toned fill area which borders Passaic River. Diked depression present on north side of fill area. Facility to the east consists of one large building, and several small buildings and structures. A light-toned material dusts the roofs of the buildings.

1951 - (Fig. 4) Fill area has deepened and expanded to the north and south. Dark fan of fill apparent on eastern main fill surface. A second large building, three horizontal tanks, and three vertical tanks have been added to the facility.

1959 - (Fig. 5) Fill area has expanded to the north and south. Possible dampness, grass cover and/or dark cover material on main fill area surface. A disturbed area east of fill area contains large light-toned mounds of material, dark-toned material, and standing liquid. Possible new fill area and light-toned mounded material near facility. Three horizontal tanks removed from facility.

1963 - (Fig. 6) Fill area may be revegetating. Disturbed area east of fill area contains mounded material, small round pit, large pit with possible standing liquid, and a dark-toned pool of standing liquid. New large building and six vertical tanks added to facility.

1970 - (Fig. 7) Light-toned areas indicate possible recent activity in southern portion of fill area. Three shallow pits and a probable tank are present in disturbed area east of fill area. New building added to facility (total of four large buildings now present).

1974 - (Fig. 8) Three light-toned scars on western fill area face. Four pits in disturbed area to east. Several patches of light-toned material onsite. Refuse with possible drums visible near facility.

1979 - (Fig. 9) Fill area has completely revegetated. Disturbed area east of fill area has been graded. At the facility, the vertical tanks and possible drums have been removed.

1983 - (Fig. 10) Possible recent disposal activity indicated by probable light-toned mounded material visible in clearings in the thick vegetation cover on fill area. Disturbed ground in graded area east of fill area may indicate possible renewed disposal activity.

EAST WHITE BRIDGE ROAD SITE

1940 - (Fig. 11) No evidence of waste disposal, but faint trails are visible.

1951 - (Fig. 12) Small buildings have been added along a dirt road.

1959 - (Fig. 13) A small light-toned fill area, a new building and a small clearing are visible. New pond has replaced small buildings present in 1951.

1963 - (Fig. 14) The small fill area is revegetating.

1970 - (Fig. 15) Fill area has revegetated.

1974 - (Fig. 16) No signs of activity.

1979 - (Fig. 17) A new small bare area has appeared.

1983 - (Fig. 18) Two clearings with possible disturbed ground, and an access road have been added to site.

CENTRAL WHITE BRIDGE ROAD SITE

1940-1951 - Site has not yet developed.

1959 - (Fig. 13) Wetland area contains light-toned fill area with large objects and earth-toned mounded material on its surface.

1963 - (Fig. 14) Fill area has expanded to south. Light-toned fill covers earth-toned mounded material. Large mound of fill visible on fill area. Fill may contain possible refuse.

1970 - (Fig. 15) Probable refuse visible at south end of smooth, revegetating fill area.

1974 - (Fig. 16) Additional fill is present at southern edge of site. Earth-toned mounded material piled on old fill surface.

1979 - (Fig. 17) Site has revegetated. An additional layer of fill may have been added to the southern portion of fill area since 1974.

1983 - (Fig. 18) Dark-toned and light-toned mottled, disturbed ground present in all but the northeast and northwest corners of the fill area (these corners are still vegetated).

WEST WHITE BRIDGE ROAD SITE

1940-1970 - Site has not yet developed.

1974 - (Fig. 16) Large light-toned fill area contains excavations, mounded material, and earth-toned mounded material. A smaller light-toned fill area is present southwest of the larger fill area.

1979 - (Fig. 17) Portions of large fill area are revegetating. Three large vegetation-covered mounds are present near an oval ground scar in the fill area. The small fill area to the southwest has revegetated.

1983 - (Fig. 18) Possible mounded material present on surface of expanded oval ground scar. The three large mounds are no longer present.

NORTH WHITE BRIDGE ROAD SITE

1940 - 1970 - Site has not yet developed.

1974 - (Fig. 16) Fill area in wetland contains mounded material.

1979 - (Fig. 17) Fill area has revegetated. Site appears inactive.

1983 - (Fig. 18) Possible mounded material present north of revegetated fill area.

PINE VALLEY TREE SERVICE SITE

1940 - (Fig. 11) No evidence of waste disposal. Disturbed ground visible in eastern part of site.

1951 - (Fig. 12) Light-toned fill area visible north of two farmsteads. Light-toned material is present east of southern farmstead. Disturbed ground now smooth and revegetating.

1959 - (Fig. 13) Fill area is revegetating. Small amount of light-toned material remains east of southern farmstead.

1963 - (Fig. 14) Probable refuse mixed with light-toned material east of southern farmstead. Possible refuse also visible in clearing on the eastern side of the site.

1970 - (Fig. 15) Light-toned fill area occupies wetland in eastern portion of site. Heavy equipment and probable dark-toned material present at fill area. Dark-toned disturbed area visible at previous location of light-toned material (1963).

1974 - (Fig. 16) Fill has been added to the fill area, which is revegetating. Dark-toned disturbed area is revegetating. Depression containing possible refuse present between two farmsteads.

1979 - (Fig. 17) Fill area has thin vegetation cover. Depression between farmsteads no longer visible.

1983 - (Fig. 18) Small dump visible in fill area. Light-toned material and disturbed ground visible at previous location of depression.

GREAT SWAMP SITE

1940 - (Fig. 19) Light-toned material and possible refuse visible along access road from Long Hill Road to farmstead.

1951 - (Fig. 20) Light-toned material and probable refuse visible only north of road.

1959 - (Fig. 21) Possible mounded material in easternmost field of old farmstead. Scattered possible refuse at new farmstead south of road.

1963 - (Fig. 22) Two light-toned fill areas added to site. Southernmost fill area encroaches into liquid-filled revetted lagoon. Light-toned bare areas in eastern field which contained possible mounded material.

1970 - (Fig. 23) Enlarged southern fill area contains dark- and light-toned material. Lagoon no longer visible. Revegetating northern fill area is slightly larger. Bare areas gone from eastern field.

1974 - (Fig. 24) Layer of mounded light-toned fill and grey-toned mounded material deposited on soutern fill area.

1979 - (Fig. 25) Northern side and perimeter of southern fill area more heavily revegetated than central portion, where light-toned fill is visible. Eastern field has revegetated.

1983 - (Fig. 26) Site has not changed significantly.

METHODOLOGY

A search of government and commercial aerial photographic sources was undertaken to obtain the best quality photography available of the site spanning the desired time frame. A listing of all maps and photography used for this report can be found in the References section.

The analysis was performed by stereoscopically viewing pairs of transparencies, backlit on a standard Richards light table. By observing the site three-dimensionally, and at various magnifications, the analyst could search for objects, features, or "signatures" associated with different environmental conditions. The term "signature" refers to a combination of characteristics (such as color, tone, shadow, texture and size) which indicate a specific object or condition, even though the object itself is not identifiable from the photography.

Prints were made from coverages which reveal significant changes in the study area. Findings are annotated on overlays to these prints, or to maps of the study area, and full descriptions are provided in the accompanying text. The resolution quality of the original, transparent photography used by the analyst is degraded on the prints due to factors inherent in the printing process. Therefore, some objects or features identified from the original film and described in the text may not be clearly discernible, or even visible, on the photographic prints presented in this report.

It should be noted that site boundaries or areas used in this analysis were determined by observations made from the aerial photography and do not denote legal property lines or ownership.

In this report, a distinction is made between probable and possible identifications. Probable is used when a limited number of discernible signatures allows the analyst to be reasonably sure of a particular identification. Possible is used when few signatures are discernible, and the analyst can only infer an identification.

AERIAL PHOTO SITE ANALYSIS

MILLINGTON SITE

December 23, 1940 (Figure 3)

The Millington Site consists of the facility area on the east, the fill area (FA) on the west, and the area between these two features (which varies in land use and cover from year to year). Significant drainage channels visible on the Millington Site are annotated each year that they are visible.

In 1940, the facility consists of one large building (B1), a number of small buildings and structures (not annotated) northwest of B1, and an open cleared lot (not annotated) west of B1. A short steep slope runs along the west side of the facility grounds, perhaps indicating that the facility was built on a shallow layer of fill. A small excavation which contains a ditch is visible northwest of B1.

Fine-textured, light-toned material is visible on portions of both the roof of B1 and the ground adjacent to it. This may indicate that airborne particulate material is being vented from the roof of B1.

A drainage channel runs north along the base of the steep slope on the west side of the facility. (The ditch in the small excavation northwest of B1 may connect to this channel.) The channel then directs runoff towards the fill area to the west. It flows down a steep embankment to the Passaic River's flood plain and then north and west into the river. A suspected drainage channel appears to lead from the southwest corner of the fill area into the river. According to the U.S. Geological Survey (USGS) topographic map of the area, the terrain drops 24-30 meters (80-100 feet) between the railroad, which borders the site to the north, and the river. It drops about 18 meters (60 feet) between B1 and the river.

The light-toned fill area west of the facility has three distinct levels. The easternmost portion is raised above the level of the upper edge of the embankment. It slopes upward toward the west and then drops off sharply to the second level. The second level is significantly built up from the level of the flood plain, but it does not quite reach to the level of the upper edge of the embankment. A diked depression (annotated as an excavation) is present on its north side. The third level is a shallow layer of light-toned material on the flood plain adjacent to the river.

A number of buildings which may be residences (not annotated) are present onsite north and south of the fill area.

LEGEND

B - Building	.... - Historical Boundary
FA - Fill Area	(symbol) - Pit
MM - Mounded Material	IIIIIIII - Revetment
SL - Standing Liquid	(symbol) - Sloped Edge Of Fill
---- - Access Road	-·-·-→ - Suspected Drainage
-·-·→ - Drainage	-·-·- - Undetermined Drainage Direction
шшшш - Excavation Area Walls	ѰѰ - Wetlands
-x-x- - Fence	

FIGURE 3
MILLINGTON ASBESTOS DUMPS DECEMBER 23, 1940 APPROX SCALE 1:2,300

ASB 002 0572

April 21, 1951 (Figure 4)

The fill area west of the facility has expanded dramatically since 1940. The main body of fill is now almost level with the upper edge of the flood plain embankment. It stretches all the way to the river's edge, and has expanded north and south parallel to the river. The surface of the fill is not completely level. Edges of fill layers and drainage channels are visible. The direction of flow in the channels cannot be determined. A dark fan of fill extends onto the main fill surface from the east. This may be the revegetating remains of the uppermost fill layer visible in 1940. A new clearing has appeared south of the fill area. A small building has appeared on the east edge of the fill area. Some of the buildings southeast of the fill area have been removed since 1940.

A second large building (B2) has been constructed at the facility on a layer of fill that is confined behind a retaining wall (not annotated). Light-toned, fine-textured material is still visible on portions of the roof of B1 and on the ground north of B2, around three horizontal tanks. Three vertical tanks are now visible near the northwestern corner of B1.

LEGEND

B - Building
FA - Fill Area
MM - Mounded Material
SL - Standing Liquid
---- - Access Road
—→ - Drainage
IIIIIII - Excavation Area Walls
*** - Fence
..... - Historical Boundary
⊖ - Pit
IIIIIIII - Revetment
- Sloped Edge Of Fill
-----→ - Suspected Drainage
-.-.-.- - Undetermined Drainage Direction
Ψ Ψ - Wetlands

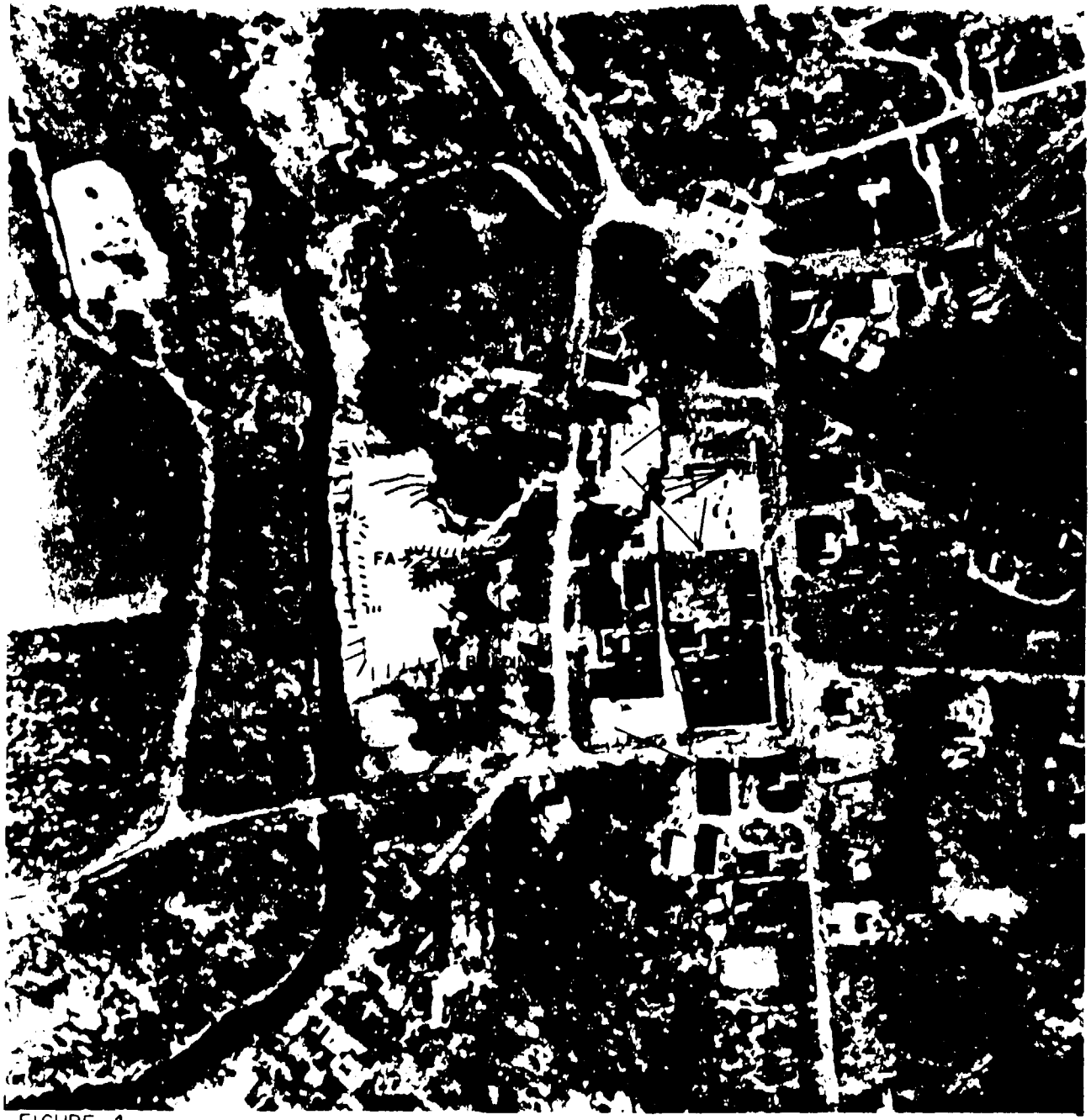


FIGURE 4
MILLINGTON ASBESTOS DUMPS APRIL 21, 1951 APPROX SCALE 1:2,500

April 16, 1959 (Figure 5)

The large fill area has expanded to the north and south, with a shallow layer of fill in the clearing that appeared in 1951. The northernmost drainage channel visible on the fill surface this year lies approximately where the edge of the fill was in 1951. The surface of the main fill area appears relatively level and somewhat dark in tone, suggesting dampness, grass cover and/or a dark cover material. Dark lines and ridges visible on the fill surface possibly indicate roads and/or drainage channels. This is the last year of photography on which the fill expands significantly in area.

Between the fill area and the road to the east is a disturbed area where large mounds of light-toned material (MM), scattered dark-toned material and standing liquid (SL) are present.

A light-toned area at the south end of B2 is possibly a new fill area. A number of small buildings and structures have been removed from the north end of the facility, including the three horizontal tanks present in 1951. A pile of light-toned mounded material is present in this area. Light-toned, fine-textured material is still present on portions of the roof of B1 and the ground west of it.

LEGEND

B - Building
FA - Fill Area
MM - Mounded Material
SL - Standing Liquid
- Access Road
- Drainage
- Excavation Area Walls
- Fence
- Historical Boundary
- Pit
- Revetment
- Sloped Edge Of Fill
- Suspected Drainage
- Undetermined Drainage Direction
- Wetlands

FIGURE 5
MILLINGTON ASBESTOS DUMPS APRIL 16, 1959 APPROX SCALE 1:2,000

May 4, 1963 (Figure 6)

The fill area has not expanded since 1959, and the pattern of suspected drainage ditches has not changed substantially. The lower, southern portion of the fill area is somewhat darker than it was in 1959, possibly indicating some revegetation. The 1963 photograph is much clearer than the 1959 photograph, allowing positive identification of some of the ditches and their direction of flow. Two of the ditches on the fill surface cut distinct pathways down the steep west side of the fill area and enter the river.

Northeast of the fill area, a large paved parking lot has been constructed, a large area has been cleared, and a building has been removed. Another new area has been cleared west of B2. Six vertical tanks have appeared along the west side of B2. A new large building (B3) has been constructed onsite. Light-toned, fine-textured material is still visible on portions of the roof of B1.

Additional earthmoving has taken place east of the fill area. Mounded materials, a small round pit and a large pit (containing possible standing liquid) are all visible in the area. A dark-toned pool of standing liquid is present at the end of a steep-walled drainage ditch that appears from under B3. This channel originates in the same area as the channel that led west from the small excavation northwest of B1 in 1940.

LEGEND

B	- Building	........-	- Historical Boundary
FA	- Fill Area	(pit symbol)	- Pit
MM	- Mounded Material	IIIIIIII	- Revetment
SL	- Standing Liquid	(sloped edge symbol)	- Sloped Edge Of Fill
-----	- Access Road	-.---•	- Suspected Drainage
-.--•	- Drainage	-.-.-	- Undetermined Drainage Direction
(excavation symbol)	- Excavation Area Walls	Ψ Ψ	- Wetlands
(fence symbol)	- Fence		

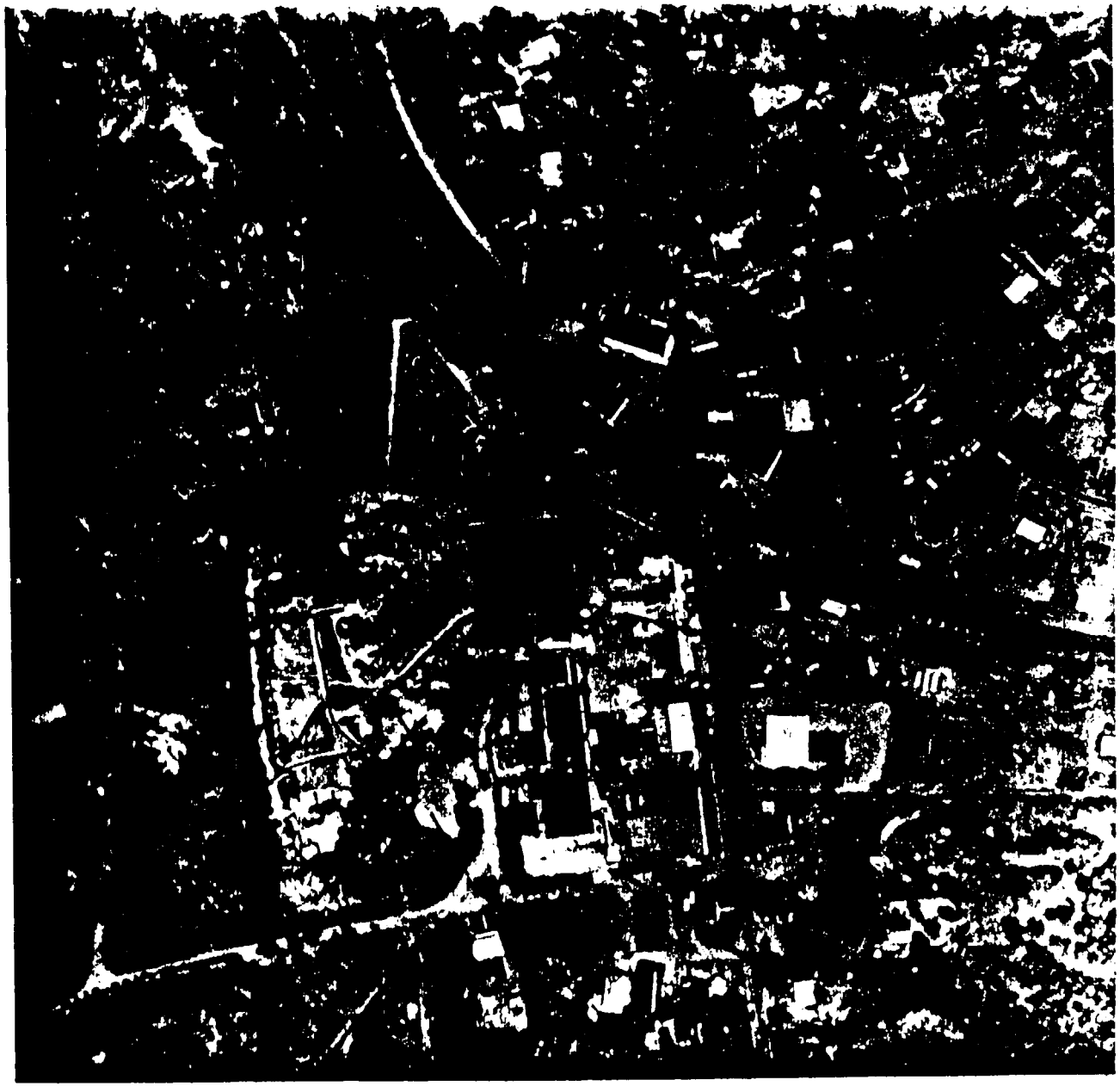


FIGURE 6
MILLINGTON ASBESTOS DUMPS MAY 4, 1963 APPROX SCALE 1:2,500

February 12, 1970 (Figure 7)

Few changes have occurred at the fill area. The southern portion is again light-toned, probably indicating some kind of recent activity on that portion of the fill surface. The pattern of drainage channels on the fill surface and leading from the facility area has changed slightly since 1963.

The area between the facility and the fill area still appears disturbed and light-toned. Three small shallow pits are visible, one containing standing liquid (also visible in 1963), and one containing possible standing liquid. A dark object, probably a tank, has been placed in this area. The cleared area visible west of B3 in 1963 has largely revegetated, with the exception of a patch of light-toned material.

A new building (B4) has been constructed on the clearing that appeared west of B2 in 1963. Light-toned, fine-textured material is still visible on portions of the roof of B1 and on the ground to the west. A large pile of probable refuse is visible at the southwest corner of B2.

LEGEND

B - Building
FA - Fill Area
MM - Mounded Material
SL - Standing Liquid
---- - Access Road
--→ - Drainage
- Excavation Area Walls
- Fence
- Historical Boundary
- Pit
- Revetment
- Sloped Edge Of Fill
- Suspected Drainage
- Undetermined Drainage Direction
- Wetlands

FIGURE 7
MILLINGTON ASBESTOS DUMPS FEBRUARY 12, 1970 APPROX SCALE 1" = 2,100'

March 17, 1974 (Figure 8)

No additional fill has been deposited at the fill area. The southern portion of the fill area is still light in tone this year, possibly indicating continued activity of some kind on this portion of the fill surface. Three light-toned scars are visible along the western, steeply sloping face of the fill area. These may be places where the cover over the underlying fill has been removed and light-toned fill material is being eroded away.

Many of the suspected drainage channels visible on the fill surface in 1970 are no longer distinct, and some are no longer present. A short drainage channel east of the fill area terminates in a pit that contains light-toned standing liquid. An empty open-bed truck is parked next to this pool. The straight, steep-walled channel that originates near B3 flows southwest into an area cut with many short ditches (not annotated) and a shallow pit. Two deeper pits are also present in that area, adjacent to a large piece of equipment or small structure.

Two patches of light-toned material (one of which was visible in 1970) are present on the slope west of B3. The southern patch is located on a short steep access road that leads to a pile of refuse. Refuse is also visible at the top of the slope near B3.

Light-toned material is also visible along an access ramp that leads to the south side of B4. Possible refuse is present in a small yard south of B2, and a pile of refuse with possible drums is noted on the north side of B4. Light-toned, fine-textured material is still visible on the roof of B1 and on the ground near its west side.

LEGEND

B - Building	.... - Historical Boundary
FA - Fill Area	⊙ - Pit
MM - Mounded Material	IIIIIIII - Revetment
SL - Standing Liquid	⌣⌣⌣ - Sloped Edge Of Fill
---- - Access Road	-·-·-→ - Suspected Drainage
-·-→ - Drainage	-·-·- - Undetermined Drainage Direction
ɯɯɯ - Excavation Area Walls	Ѱ Ѱ - Wetlands
×××- - Fence	

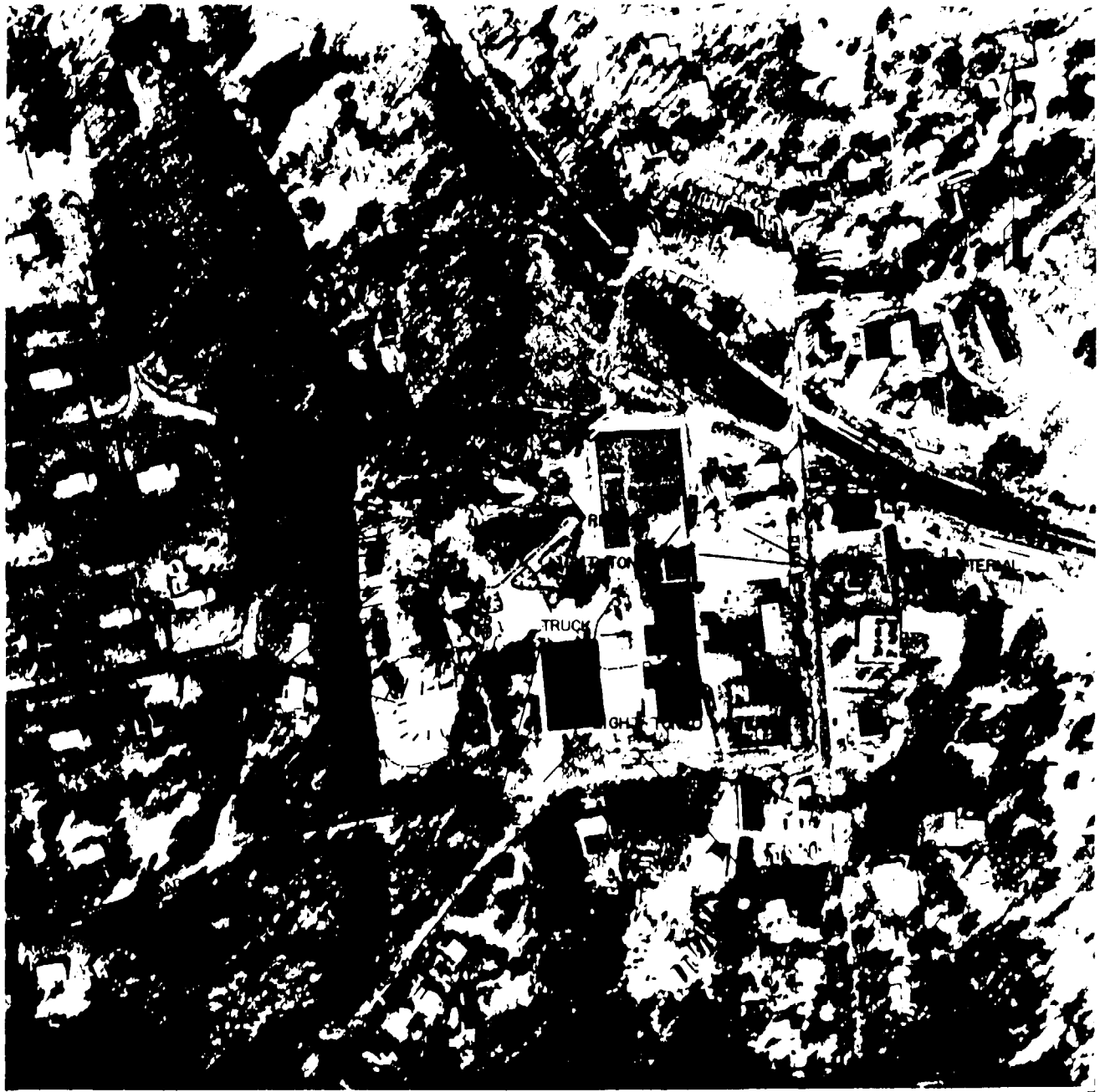


FIGURE 8
MILLINGTON ASBESTOS DUMPS MARCH 17, 1974 APPROX SCALE 1:2,600

July 7, 1979 (Figure 9)

The fill area has completely revegetated and shows no signs of disposal activity. None of the drainage channels visible on the fill area surface in 1974 are still present. The light tone of the strip of land at the base of the fill immediately adjacent to the river may indicate bank erosion.

The area between the facility buildings and the revegetated fill area has been graded and appears generally smooth and level. It shows none of the ditches, small pits, or vegetation present in 1974. No light-toned scars are visible along the west edge of the fill area, as there were in 1974.

Scattered objects west of B3 may be pieces of refuse or equipment. Possible refuse is also visible at the southwest corner of B4. The refuse mixed with possible drums seen at the northwest corner of B4 in 1974 is no longer present.

Light-toned material is still visible on the access ramp on the south side of B4, on the roof of B1 and on the ground nearby, and in two small areas north of B3. The vertical tanks on the west side of B1 and the west side of B2 have been removed.

LEGEND

B - Building
FA - Fill Area
MM - Mounded Material
SL - Standing Liquid
- - - - Access Road
—→ - Drainage
IIIIIIII - Excavation Area Walls
×××× - Fence
..... - Historical Boundary
⊙ - Pit
IIIIIIII - Revetment
- Sloped Edge Of Fill
- - - - → - Suspected Drainage
—.—.— - Undetermined Drainage Direction
Ψ Ψ - Wetlands

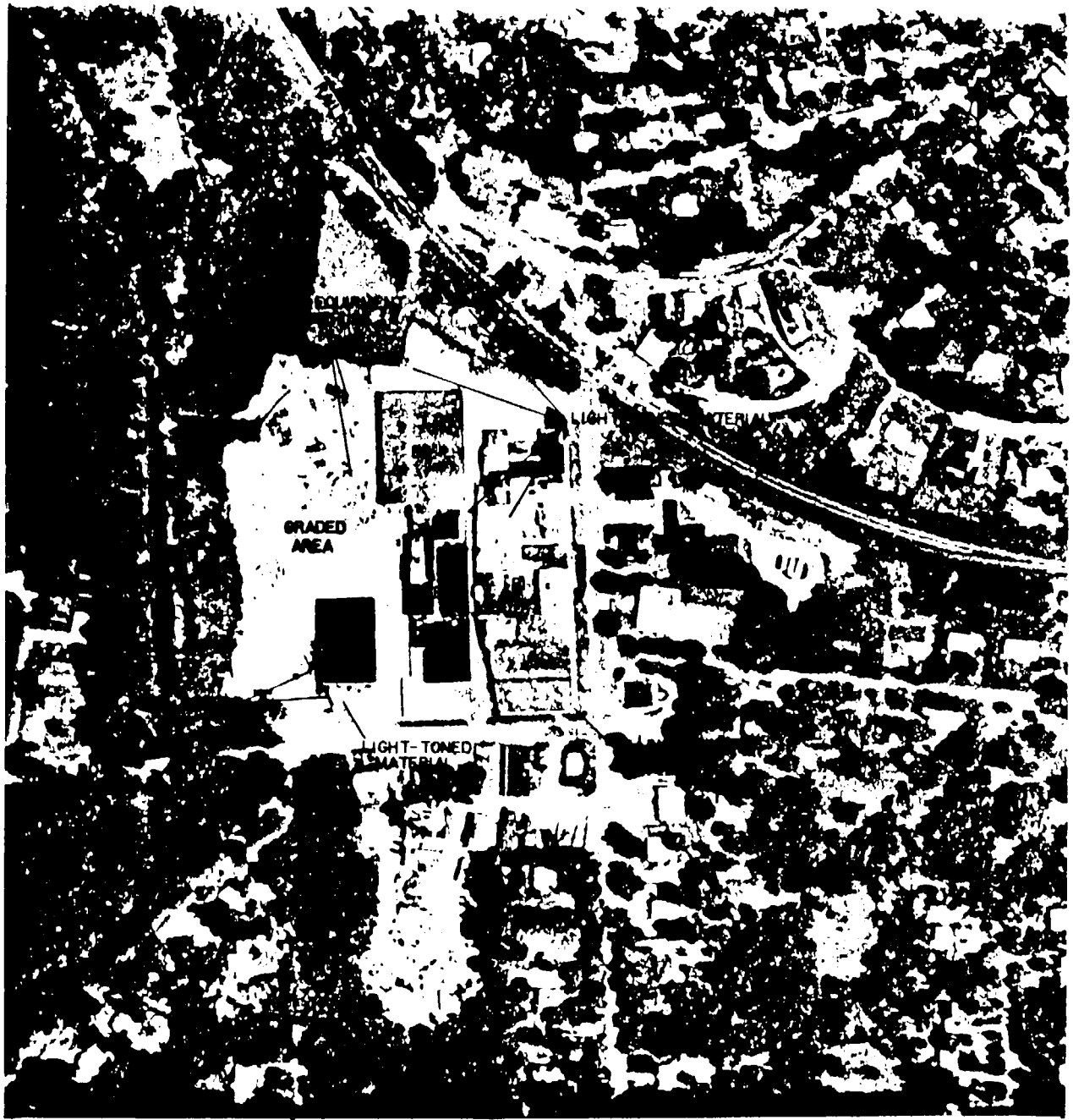


FIGURE 9
MILLINGTON ASBESTOS DUMPS JULY 7, 1979 APPROX SCALE 1:2,700

June 23, 1983 (Figure 10)

Most of the fill area displays a thick vegetation cover, which includes bushes and small trees. (The thick vegetation cover in the area and the relatively poor quality of the stereo coverage preclude determination of the exact edges of the fill area. The marks shown on the overlay reflect the probable locations of the fill edges based on their locations on the 1979 photograph.) Probable light-toned mounded material is visible on the fill surface in clearings in the trees, possibly indicating recent disposal activity.

The area between the revegetated fill area and the facility buildings is no longer smooth and featureless. It appears somewhat disturbed and has begun to revegetate. Areas of disturbed ground (annotated), and other signs of renewed disposal activity (not annotated), such as vehicles, access roads, probable small pools of standing liquid, and possible dark- and light-toned dumped material, are visible.

The light-toned material and possible refuse south of B4 and the light-toned material north of B3 are no longer visible. Light-toned material is still present on the roof of B1 and on the ground nearby.

LEGEND

B - Building
FA - Fill Area
MM - Mounded Material
SL - Standing Liquid
----- - Access Road
----→ - Drainage
IIIIIIII - Excavation Area Walls
✱✱✱ - Fence
..... - Historical Boundary
⊕ - Pit
IIIIIIII - Revetment
ᔓᔓᔓ - Sloped Edge Of Fill
-----→ - Suspected Drainage
-.-.-.- - Undetermined Drainage Direction
Ψ Ψ - Wetlands

FIGURE 10
MILLINGTON ASBESTOS DUMPS

JUNE 23, 1983

APPROX SCALE 1:5,100

DECEMBER 23, 1940 (Figure 11)

Wetland areas, major drainage channels, and many of the smaller channels and ditches in the area are annotated. Only significant changes are noted on later years of photography. The site boundaries are shown on the 1940 photograph only. Individual sites are discussed from the time activity is first visible.

The general area is very marshy. However, in 1940, the water table is apparently very low and many of the smaller wetland areas are dry. Although textural and tonal differences on the photograph permit identification of many of these small wetland areas, they are not annotated on this photograph.

East White Bridge Road Site

A few faint trails are visible in the trees at the site. No signs of waste disposal are present.

Pine Valley Tree Service Site

Two farmsteads are present onsite. A large patch of disturbed ground is visible on the east side of the site. A small excavation containing standing liquid is present northeast of the northern farmstead. No signs of waste disposal are present onsite.

LEGEND

B - Building
FA - Fill Area
MM - Mounded Material
SL - Standing Liquid
----- - Access Road
—→ - Drainage
- Excavation Area Walls
- Fence
..... - Historical Boundary
- Pit
- Revetment
- Sloped Edge Of Fill
- Suspected Drainage
- Undetermined Drainage Direction
- Wetlands

FIGURE 11
MILLINGTON ASBESTOS DUMPS DECEMBER 23, 1940 APPROX SCALE 1: 4,500

APRIL 21, 1951 (Figure 12)

East White Bridge Road Site

A cluster of small buildings (annotated "New B") and one separate possible building have been constructed along a dirt road that runs south from White Bridge Road. Faint trails are still visible in the woods at the south end of that dirt road. No signs of disposal are present onsite.

Pine Valley Tree Service Site

The area of disturbed ground present in 1940 is now smooth and revegetating. A light-toned fill area has appeared in the small wetland north of the northern farmstead. East of this farmstead, the small excavation (annotated "excavation (1940)") now has gently sloping banks and resembles the other small ponds/wetlands in the area. A small amount of light-toned material is visible east of the outbuildings at the southern farmstead.

LEGEND

B - Building
FA - Fill Area
MM - Mounded Material
SL - Standing Liquid
---- - Access Road
--→ - Drainage
- Excavation Area Walls
- Fence
- Historical Boundary
- Pit
- Revetment
- Sloped Edge Of Fill
- Suspected Drainage
- Undetermined Drainage Direction
- Wetlands

FIGURE 12
MILLINGTON ASBESTOS DUMPS APRIL 21, 1951 APPROX SCALE 1" = 4,600

APRIL 16, 1959 (Figure 13)

East White Bridge Road Site

The cluster of small buildings that appeared in 1951 has been removed, and a new small pond is present in their place. A small light-toned fill area, a new small building and a small clearing have appeared onsite.

Central White Bridge Road Site

This site is active for the first time. A light-toned fill area with a number of large objects on its surface, and a large quantity of earth-toned mounded material, have appeared in the wetland onsite.

Pine Valley Tree Service Site

A small amount of light-toned material is still visible east of the southern farmstead. A new pond has been dug between the two farmsteads. The fill area north of the farmsteads is beginning to revegetate; it will not be annotated or discussed after this year.

LEGEND

B - Building
FA - Fill Area
MM - Mounded Material
SL - Standing Liquid
- Access Road
- Drainage
- Excavation Area Walls
- Fence
- Historical Boundary
- Pit
- Revetment
- Sloped Edge Of Fill
- Suspected Drainage
- Undetermined Drainage Direction
- Wetlands

FIGURE 13
MILLINGTON ASBESTOS DUMPS APRIL 16, 1959 APPROX SCALE 1: 5,200

MAY 4, 1963 (Figure 14)

East White Bridge Road Site

The small fill area is beginning to revegetate. The small building and clearing are still present (not annotated).

Central White Bridge Road Site

Additional light-toned fill has been deposited onsite, covering the earth-toned mounded material visible in 1959 and extending south from the 1959 light-toned fill area. A large mound of fill is visible at the south end of the fill area. Some rough-textured material, possibly refuse, is mixed with the light-toned fill. A graded area on the north edge of the site is possibly starting to revegetate.

Pine Valley Tree Service Site

Light-toned material is still visible east of the southern farmstead and now appears to be mixed with probable refuse. A small cluster of objects, possibly pieces of refuse, are visible in a cleared area on the east side of the site.

LEGEND

B - Building
FA - Fill Area
MM - Mounded Material
SL - Standing Liquid
---- - Access Road
-·-→ - Drainage
- Excavation Area Walls
- Fence
- Historical Boundary
- Pit
- Revetment
- Sloped Edge Of Fill
- Suspected Drainage
- Undetermined Drainage Direction
- Wetlands

FIGURE 14
MILLINGTON ASBESTOS DUMPS MAY 4, 1963 APPROX SCALE 1:4,500

ASB 002 0594

FEBRUARY 12, 1970 (Figure 15)

East White Bridge Road Site

The small fill area has completely revegetated and will not be annotated on later photographs. No signs of current dumping are visible.

Central White Bridge Road Site

The site appears to be revegetating. Shrubs visible south of the active fill area in 1963 have been removed, and the whole area appears to be covered with a smooth, level layer of (now revegetating) fill. Rough-textured material, probably refuse, is visible at the south end of the site where the unlevel ground surface may indicate the edge of the fill layer. No vehicle trails or other signs of current activity are visible.

Pine Valley Tree Service Site

A light-toned fill area has appeared in a small wetland. Two pieces of heavy equipment and some probable dark-toned material are present at the fill area.

A large, dark-toned disturbed area is visible southwest of the fill area where the small deposits of light-toned material have been noted in previous years. The dark tone of the ground here may indicate dumped dark-toned material or damp soil.

LEGEND

B - Building
FA - Fill Area
MM - Mounded Material
SL - Standing Liquid
---- - Access Road
--·-→ - Drainage
- Excavation Area Walls
-x-x-x- - Fence
.... - Historical Boundary
- Pit
- Revetment
- Sloped Edge Of Fill
- Suspected Drainage
- Undetermined Drainage Direction
Ψ Ψ - Wetlands

MARCH 13, 1974 (Figure 16)

East White Bridge Road Site

No signs of activity are visible.

Central White Bridge Road Site

The site appears more active than it did in 1970. Additional fill has been deposited along the far southern edge of the site. Earth-toned mounded material, probably mixed with refuse, is visible on the old fill surface. Two new sheds have been built and a new loop access road has also appeared.

West White Bridge Road Site

This site is active for the first time. A large light-toned fill area has appeared. Excavations and mounded material are visible along the south and west sides of the main fill area. Vehicles, sheds and earth-toned mounded material are also present. A smaller light-toned fill area is visible south of the sheds.

North White Bridge Road Site

This site is active for the first time. A fill area with mounded material of various tones has appeared in a wetland area.

Pine Valley Tree Service Site

Additional fill has been deposited in the old wetland area (see historic wetland boundary on overlay). Most of this filled area is beginning to revegetate. A small amount of light-toned material is visible on the revegetating fill area surface adjacent to the access road. Southwest of this fill area is a smooth, revegetating area that appeared dark-toned and disturbed in 1970.

The small pond between the two farmsteads has been filled and the surface of the fill graded. A small depression, containing possible refuse, is visible here.

LEGEND

B - Building	.... - Historical Boundary
FA - Fill Area	- Pit
MM - Mounded Material	- Revetment
SL - Standing Liquid	- Sloped Edge Of Fill
---- - Access Road	- Suspected Drainage
- Drainage	- Undetermined Drainage Direction
- Excavation Area Walls	- Wetlands
- Fence	

FIGURE 16
MILLINGTON ASBESTOS DUMPS MARCH 13, 1974 APPROX SCALE 1: 5,100

JULY 7, 1979 (Figure 17)

East White Bridge Road Site

A new small bare area (possibly with a light grass cover) is the only feature of interest onsite.

Central White Bridge Road Site

The site has largely revegetated since 1974. The loop access road is still present and appears well-used. The south end of the site appears to be somewhat higher than the north end. Aside from a thicker layer of vegetation, the south end may have an additional fill layer. Other cuts (possible access roads) in the vegetation and fill south of the loop access road surround the area where earth-toned mounded material was visible in 1974.

The sheds visible in 1974 have been removed.

West White Bridge Road Site

The large fill area and the immediately surrounding area are much smoother and fairly level, and portions have begun to revegetate. A roughly oval ground scar is still visible in this area. A possible vehicle is visible on the scarred area. North and south of the scar are numerous graded areas (not annotated) with a light vegetation cover. Three large, vegetation-covered mounds are present south of the scarred area. A small amount of light-toned material is present west of a small pond on the north side of the site.

The small fill area present in the southwest corner of the site in 1974 has also revegetated. Two new buildings have replaced the sheds on the west side of the site. Light-toned linear features (not annotated) extend east from each of these buildings. These may be access roads to the center of the site, ditches or fencelines. A fence can be seen onsite; the sections annotated may be only the detectable portions of a longer fence.

North White Bridge Road Site

The site appears inactive; the fill area has revegetated. A small amount of possible refuse is visible. The northern two-thirds of the access road are faint and look relatively unused. A small ground scar is visible at the north end of the access road.

Pine Valley Tree Service Site

The access road to the eastern portion of the site is still distinct and apparently well-used. The fill area visible in 1970 is still faintly visible under a thin cover of vegetation.

The graded fill area between the farmsteads on the west side of the site has revegetated, and the depression with refuse present in 1974 is no longer visible.

LEGEND

B - Building
FA - Fill Area
MM - Mounded Material
SL - Standing Liquid
- Access Road
- Drainage
- Excavation Area Walls
- Fence
- Historical Boundary
⊕ - Pit
- Revetment
- Sloped Edge Of Fill
- Suspected Drainage
- Undetermined Drainage Direction
- Wetlands

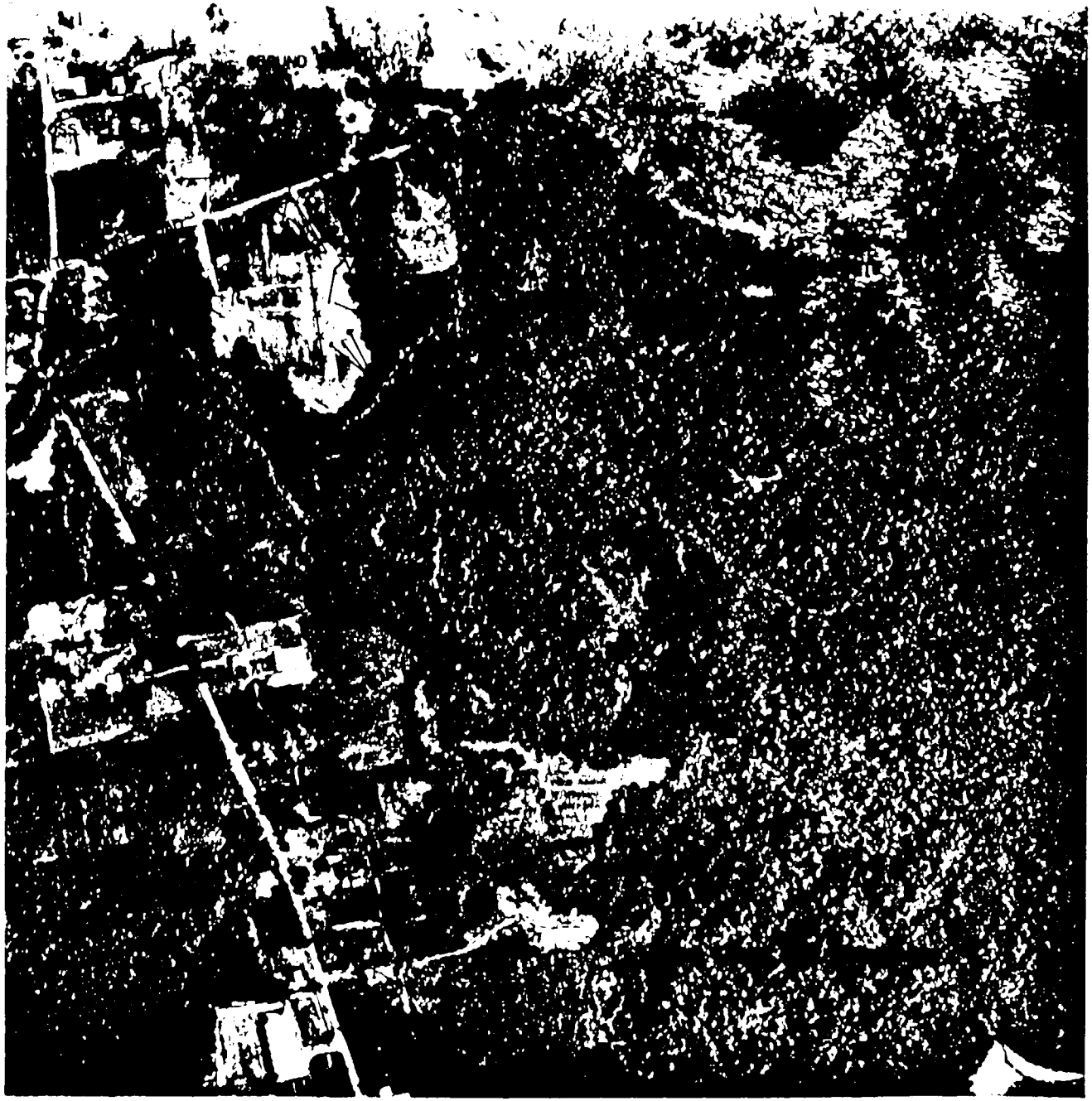


FIGURE 17
MILLINGTON ASBESTOS DUMPS JULY 7, 1979 APPROX SCALE 1:5,500

JUNE 23, 1983 (Figure 18)

East White Bridge Road Site

The bare area visible in 1979, two new clearings (possibly with disturbed ground), and a new access road are present onsite.

Central White Bridge Road Site

The northeast and northwest corners of the old fill area are still vegetation-covered. The rest of the site is occupied by the loop access road and dark- and light-toned mottled ground. The ground in this area appears disturbed and may be damp and/or covered with dead vegetation. A small amount of light-toned (possibly dumped) material (not annotated) is visible.

West White Bridge Road Site

The site has changed very little since 1979. The oval ground scar has expanded slightly, and possible mounded material is visible on its surface. The access road still appears well-used, and signs of vehicular traffic and grading are also visible south and east of the ground scar. The three large mounds are no longer present south of the scar.

A revegetated fill area is visible in the middle of a small pond in the northern portion of the site. The section of fence annotated may only be a portion of a longer fence, not detectable on the imagery.

North White Bridge Road Site

Some bare, possibly disturbed areas (not annotated) are visible along the access road. At the north end of the access road (in the ground scarred area visible in 1979) is some possibly mounded, multi-colored material.

Pine Valley Tree Service Site

A small dump is visible in the eastern revegetating fill area. Refuse, probable vehicles, probable light-toned material and disturbed ground are present. (Only the probable vehicles are annotated.) West of the dump, the revegetated fill area (active on the 1970 photograph) appears somewhat marshy.

An area containing light-toned material (possibly mounded) and disturbed ground is located between the two farmsteads on the west side of the site where the graded fill area was present in 1974.

LEGEND

B	Building	....	Historical Boundary
FA	Fill Area	⊕	Pit
MM	Mounded Material	IIIIIII	Revetment
SL	Standing Liquid		Sloped Edge Of Fill
----	Access Road	----→	Suspected Drainage
--·--→	Drainage	--·--·--	Undetermined Drainage Direction
ШШШ	Excavation Area Walls	ѰѰ	Wetlands
×-×-×	Fence		

GREAT SWAMP SITE

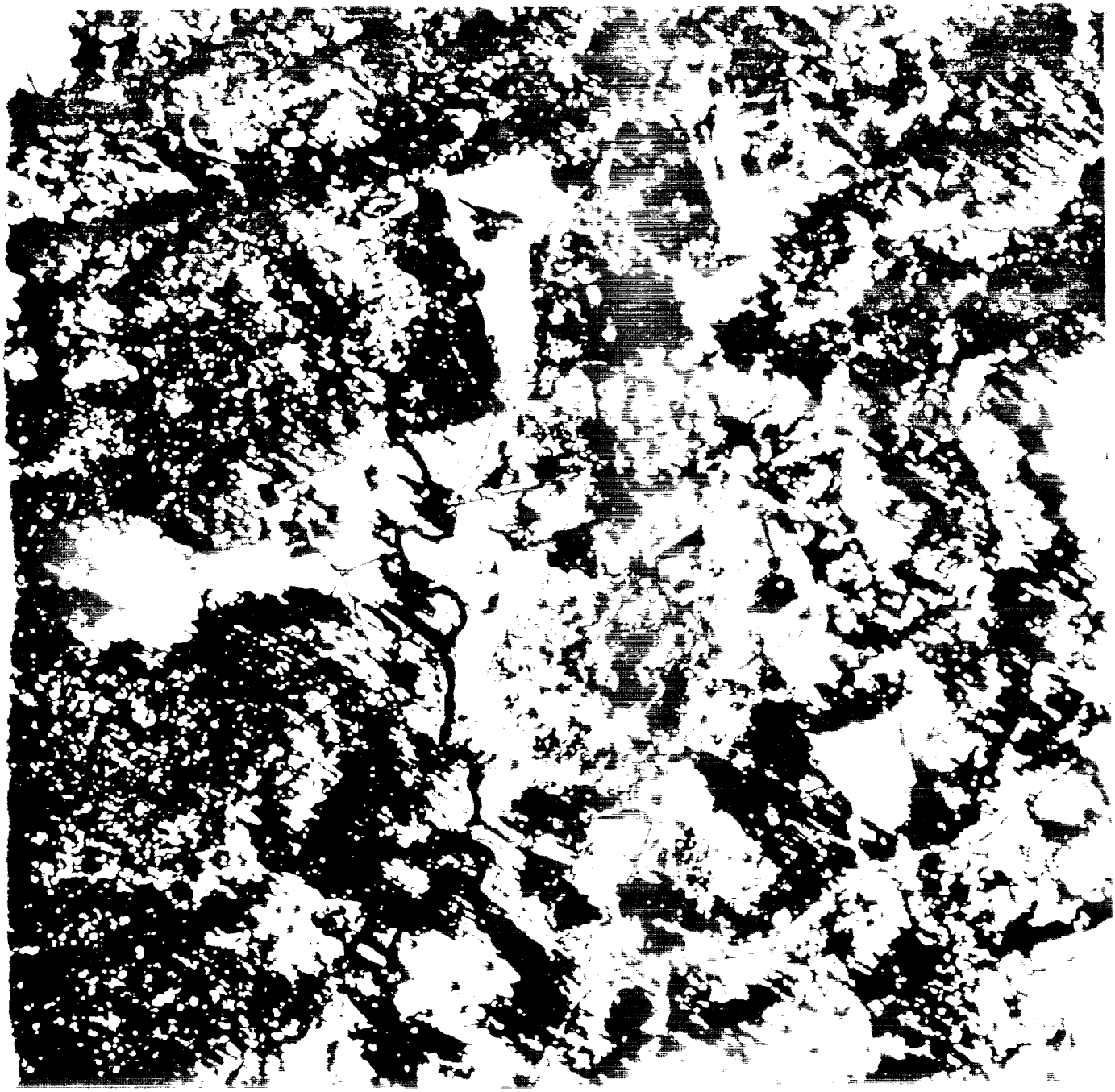
DECEMBER 23, 1940 (Figure 19)

Major drainage channels, ditches, and wetland features are shown on this photograph. The entire area is made up of relatively level wetland areas between low hummocks. An irregular vegetation cover is present. A number of fields appear to have been recently cultivated.

Light-toned material and possible refuse are visible along the access road that connects a farmstead with Long Hill Road.

LEGEND

B - Building
FA - Fill Area
MM - Mounded Material
SL - Standing Liquid
---- - Access Road
-·-→ - Drainage
- Excavation Area Walls
- Fence
- Historical Boundary
- Pit
- Revetment
- Sloped Edge Of Fill
- Suspected Drainage
- Undetermined Drainage Direction
- Wetlands



APRIL 21, 1951 (Figure 20)

Light-toned material and probable refuse are visible north of the access road. The light-toned material and possible refuse visible south of the access road in 1940 are no longer visible, but a somewhat disturbed light-toned patch of ground (not annotated) can still be seen in the woods where it was located.

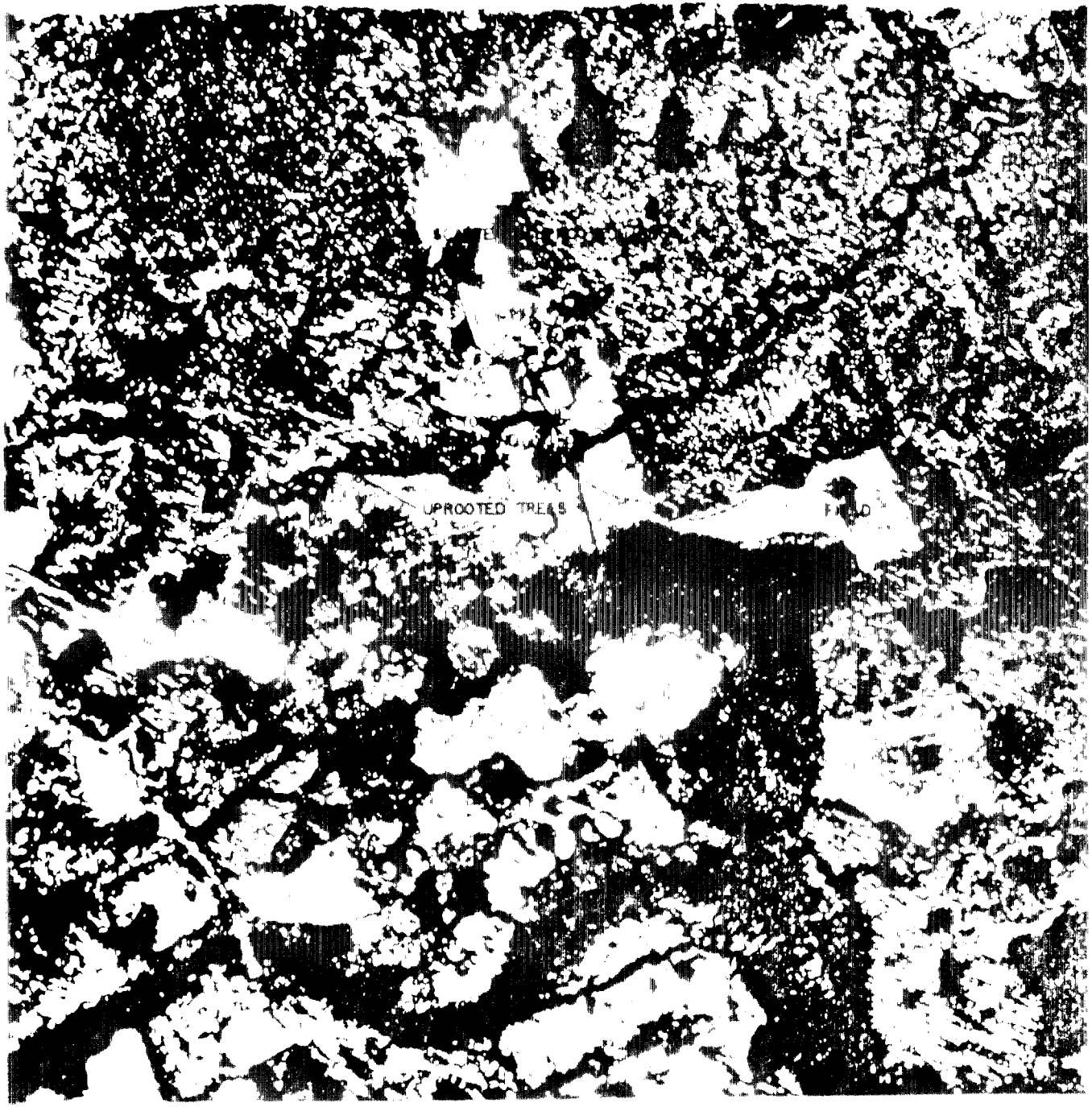
Numerous uprooted trees are visible north and south of the light-toned material. A new drainage channel has been cut across a bend in Great Brook near some of the uprooted trees.

Some of the farmstead buildings have been dismantled, and refuse is scattered about the area. However, the access road leading to the buildings appears well-maintained. Access roads leading to the easternmost field from the east are visible (but not annotated) on the far right-hand edge of the photograph. The other fields onsite have not overgrown, but no signs of recent cultivation are visible.

LEGEND

B - Building
FA - Fill Area
MM - Mounded Material
SL - Standing Liquid
---- - Access Road
--→ - Drainage
Excavation Area Walls
Fence

Historical Boundary
Pit
Revetment
Sloped Edge Of Fill
Suspected Drainage
Undetermined Drainage Direction
Wetlands


UPROOTED TREES

APRIL 16, 1959 (Figure 21)

A new building, a vehicle and some scattered possible refuse are visible at a new farmstead south of the access road, near Long Hill Road. Light-toned material is still faintly visible through the trees north of the access road where the light-toned material and refuse were present in 1951.

More buildings have been removed from the old farmstead, and the access road appears less distinct. The fields immediately north and south of the farmstead are revegetating.

Even rows of light-toned patches, possibly mounded material, can be seen in the easternmost field.

LEGEND

B - Building
FA - Fill Area
MM - Mounded Material
SL - Standing Liquid
---- - Access Road
-·-·→ - Drainage
- Excavation Area Walls
✱✱✱ - Fence
- Historical Boundary
- Pit
- Revetment
- Sloped Edge Of Fill
- Suspected Drainage
- Undetermined Drainage Direction
- Wetlands

FIGURE 21
MILLINGTON ASBESTOS DUMPS APRIL 16, 1959 APPROX SCALE 1:5,200

MAY 4, 1963 (Figure 22)

Two small light-toned fill areas are present onsite. Light-toned material was present on the ground in 1959 where the northern fill area is visible. The southern fill area is encroaching into a liquid-filled, revetted lagoon. Vehicles and refuse are visible at this fill area near the access road. A new spur of dirt road branches off the access road north of this fill area. No clear access road can be seen leading onto the fill surface at the northern fill area.

A number of new small sheds, an oval possible track (not annotated), and pieces of probable refuse are visible east of the small building at the farmstead on the west side of the site.

East of the northern fill area, the access road becomes poorly defined and appears relatively unused. Irregular light-toned bare areas are visible through the grass cover in the easternmost field.

LEGEND

B - Building	.... - Historical Boundary
FA - Fill Area	Pit
MM - Mounded Material	Revetment
SL - Standing Liquid	Sloped Edge Of Fill
---- - Access Road	Suspected Drainage
Drainage	Undetermined Drainage Direction
Excavation Area Walls	Wetlands
Fence	

FEBRUARY 12, 1970 (Figure 23)

The appearance of the site on this year of photography is altered somewhat by the lack of a distinct tree canopy and the presence of ice in some of the wetland areas. Stereo coverage of only the southern portion of the photo area was available to the analyst.

The southern fill area has nearly tripled in size. Dark- and light-toned material is present.

The northern fill area is slightly larger this year and is beginning to revegetate. No signs of recent activity are visible here.

The probable refuse visible near the sheds on the west side of the site in 1963 is no longer present. No buildings are visible at the old farmstead. The access road leading over to the easternmost field is still faintly detectable. The light-toned bare areas visible in this field in 1963 are no longer present.

LEGEND

B - Building	- Historical Boundary
FA - Fill Area	- Pit
MM - Mounded Material	- Revetment
SL - Standing Liquid	- Sloped Edge Of Fill
- Access Road	- Suspected Drainage
- Drainage	- Undetermined Drainage Direction
- Excavation Area Walls	- Wetlands
- Fence	

FIGURE 23
MILLINGTON ASBESTOS DUMPS FEBRUARY 12, 1970 APPROX SCALE 1:4,200

MARCH 13, 1974 (Figure 24)

The large fill area has not grown significantly since 1970. A layer of mounded light-toned fill of relatively uniform thickness has been deposited on the area. Grey-toned mounded material has been placed on top of portions of this light-toned fill.

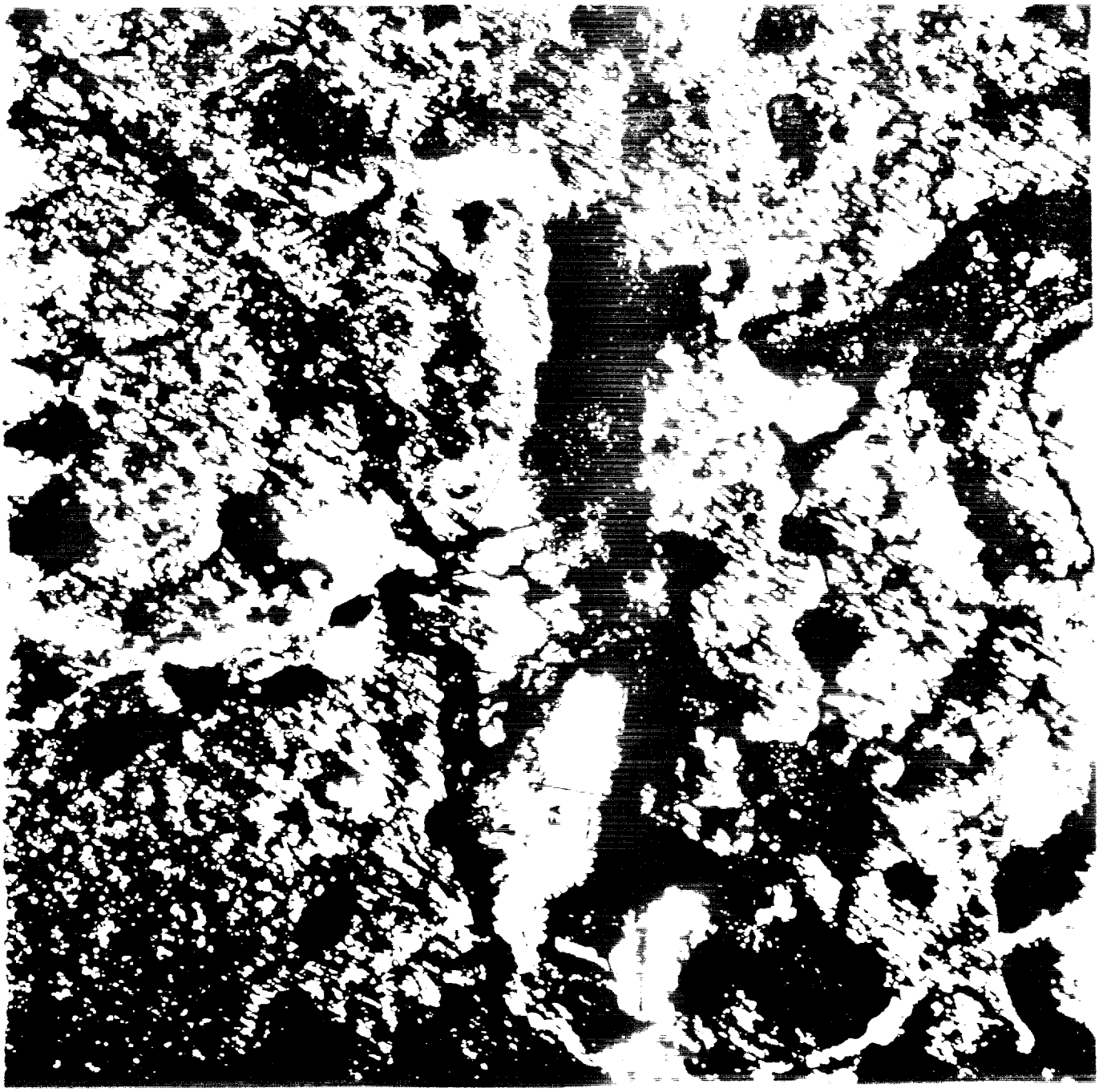
The small fill area present north of the access road in 1963 has still not completely revegetated.

A new pile of refuse is present at the farmstead on the west side of the site.

The easternmost field is still cleared and shows probable grading or plow marks. The access roads (not annotated) east of this field are still visible.

LEGEND

B - Building
FA - Fill Area
MM - Mounded Material
SL - Standing Liquid
----- - Access Road
—→ - Drainage
- Excavation Area Walls
- Fence
..... - Historical Boundary
- Pit
- Revetment
- Sloped Edge Of Fill
—•— - Suspected Drainage
—.— - Undetermined Drainage Direction
- Wetlands



JULY 7, 1979 (Figure 25)

The site appears relatively inactive in 1979. The buildings, sheds and all signs of refuse have been removed from the farmstead on the west side of the site. Only a small graded lot containing four parked cars remains in that area. The access road northeast of that lot is still fairly distinct as far northeast as Great Brook. No clear access road leads to the revegetating fill area. A fragment of the old road can be seen on the fill surface.

The areas on the north side of the fill area and around its perimeter, where the grey-toned mounded material was visible in 1974, are much more heavily revegetated than the center of the fill area, where light-toned fill was visible in 1974. Light-toned material is still visible in the center of the fill area. No signs of active dumping are present. A distinct drainage channel runs along the base of the fill on the east side of the area.

The easternmost field has revegetated and the access roads east of it are no longer visible.

LEGEND

B	- Building	....	- Historical Boundary
FA	- Fill Area	⊛	- Pit
MM	- Mounded Material	IIIIIIII	- Revetment
SL	- Standing Liquid	‿‿‿	- Sloped Edge Of Fill
----	- Access Road	-.-.-→	- Suspected Drainage
-·-·→	- Drainage	-.-.-	- Undetermined Drainage Direction
шшшш	- Excavation Area Walls	ѰѰ	- Wetlands
✕✕✕	- Fence		

FIGURE 25
WELLINGTON ASBESTOS DUMPS

JUNE 23, 1983 (Figure 26)

The site has not changed appreciably since 1979. Light-toned material is still visible through the vegetation cover on the revegetating fill area. The access road is still distinct as far northeast as Great Brook. No cars are present in the graded lot.

LEGEND

B - Building
FA - Fill Area
MM - Mounded Material
SL - Standing Liquid
---- - Access Road
---→ - Drainage
IIIIIII - Excavation Area Walls
**** - Fence
..... - Historical Boundary
⊙ - Pit
IIIIIII - Revetment
- Sloped Edge Of Fill
---• - Suspected Drainage
-.-.- - Undetermined Drainage Direction
Ψ Ψ - Wetlands

REFERENCES

AERIAL PHOTOGRAPHY

Date	Agency	Mission Code	Frame #	Orig. Scale	EPIC Frame #
December 23, 1940	TXAERO[1]	--	31:15-18, 121, 122	1:20,000	7052-7057
April 21, 1951	TXAERO	--	289:3910-3913,3937, 3938	1:20,000	7058-7063
April 16, 1959	ROBASI[2]	JER	8W:84-86, 13W:175, 176	1:18,000	7047-7051
May 4, 1963	ASCS[3]	EAR	1DD:125-129, 133-135	1:20.000	7260-7267
February 12, 1970	USGS[4]	VCIV	4:29-33,52-56,131-133	1:24,000	7204-7216
March 13, 1974	TXAERO	--	2063 31:1087, 1088, 2063 33:992-995	1:18,000	7064-7069
July 7, 1979	ASCS	40 34027	178:45-47	1:40,000	7373-7375
June 23, 1983	USFS[5]	83/043	204-209	1:32,500 at nadir	204-209

MAPS

Source	Name	Scale	Date
USGS	Bernardsville, NJ	1:24,000	1981
USGS	Chatham, NJ	1:24,000	1981

[1]Aero Service Corp., Houston TX

[2]Robinson Aerial Surveys, Inc., Newton, N.J.

[3]Agricultural Stabilization and Conservation Service, U.S. Department of Agriculture

[4]U.S. Geological Survey, U.S. Department of Interior

[5]U.S. Forest Service, U.S. Department of Agriculture